

HOW I DO IT

Preoperative Localization in Patients With Difficult Re-Explorations for Hyperparathyroidism

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More than 90% of patients with primary hyperparathyroidism are cured by their first operation. In these patients, no preoperative localization procedures are normally needed.

Patients who have had previous thyroid or parathyroid surgery require preoperative localization. Because of the high false-positive rates of noninvasive imaging procedures (ultrasound, computed tomography, magnetic resonance imaging, and scintigraphy) when used for parathyroid localization, localization is not achieved until an abnormal gland is identified in the same location on at least two of these examinations. Noninvasive studies may be inconclusive in up to 50% of patients. Suspicious lesions may be aspirated or biopsied with imaging guid-

ance. If this cannot be done or is nondiagnostic, angiography and, if necessary, parathyroid venous sampling should be done.

Over the past 10 years, 80 patients have undergone surgical exploration for parathyroid adenoma at the National Naval Medical Center. Most have been cured by their first operation. In some complex cases of re-exploration, however, the full range of localization procedures will be needed (Figs. 1 and 2). In this event, the services of an experienced endocrine radiologist and surgeon may be invaluable. The illustrated case indicates that persistence in preoperative localization is essential in patients with occult parathyroid adenomas (persistent hypercalcemia).

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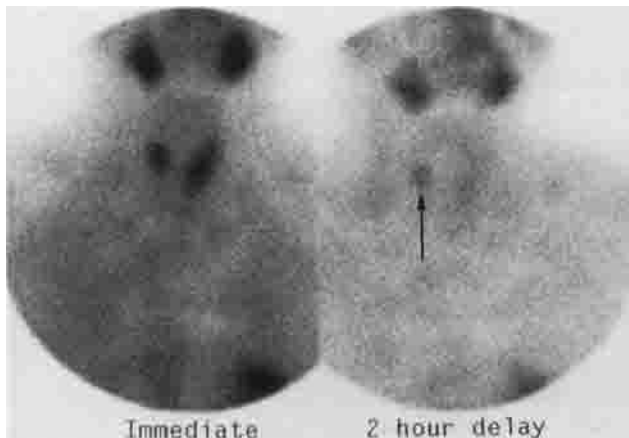


Fig. 1. A 44-year-old male with primary hyperparathyroidism and prior right partial thyroidectomy for adenoma at age 21 underwent neck exploration in February 1995. No abnormal parathyroid glands were identified. Left neck exploration and local lymph node resection incidentally revealed a diagnosis of papillary thyroid carcinoma. Subsequently, the patient underwent ultrasound, CT, sestamibi scintigraphy, parathyroid arteriography, and parathyroid venous sampling. The ultrasound and CT did not identify an abnormal parathyroid gland. The ^{99m}Tc sestamibi scintigram (shown) was consistent with a parathyroid adenoma in the right neck (arrow).

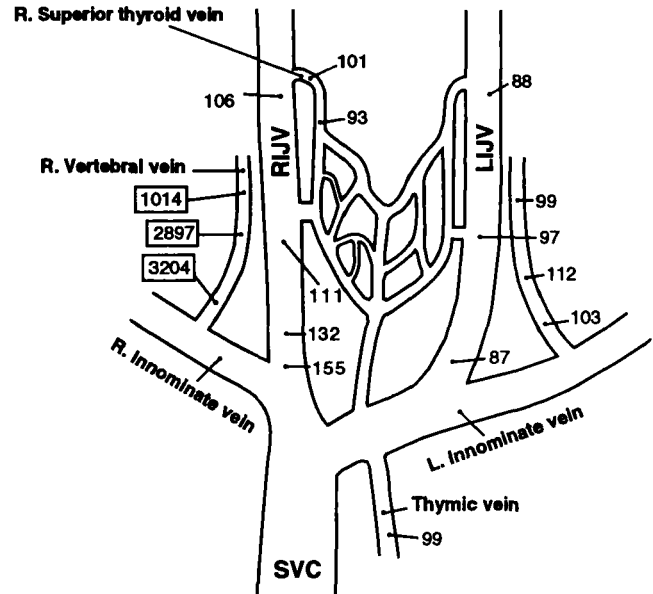


Fig. 2. Venous sampling for parathyroid hormone: peripheral parathyroid hormone (PTH) 89 pg/ml. Because parathyroid arteriography (not shown) was not conclusive, parathyroid venous sampling was performed. Samples were obtained from multiple sites and assayed for parathyroid hormone. The diagram illustrates the PTH concentrations at the sampled sites (LIJV = left internal jugular vein, RIJV = right internal jugular vein, SVC = superior vena cava, R = right, L = left). Parathyroid hormone levels in the right vertebral vein samples were markedly elevated compared to other selective samples and to peripheral venous levels of PTH. At subsequent surgery a 1,300 mg right tracheo-esophageal groove parathyroid adenoma was resected and the patient rendered normocalcemic.